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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,903	09/29/2003	Peter Bier	PO7878/LeA 35,782	1980

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EXAMINER
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ZIMMER, MARC S

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 09/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/673,903	<b>Applicant(s)</b> BIER ET AL.	
	<b>Examiner</b> Marc S. Zimmer	<b>Art Unit</b> 1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4,6,10-12,14,15,27 and 28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,6,10,12,14,15,27 and 28 is/are rejected.
- 7) ☒ Claim(s) 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

*[Handwritten mark]*

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Based on an indication of allowable subject matter in original claim 8, Applicant has amended claim 1 to stipulate that the metal hydrolyzate is formed from a compound selected from those based on aluminum, boron, vanadium oxide, and indium. The Examiner has since discovered in a modified survey of the prior art additional references that anticipate numerous embodiments of the claimed invention. The Examiner sincerely regrets any inconvenience this may have caused.

### ***Claim Objections***

Claim 11 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 11 is no longer further limiting of claim 1 insofar as Si has been eliminated as an embodiment of the variable M.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-4, 6, 10-12, 14-15, and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In the final two lines of claim 1, Applicant refers to "the hydrolysis of steps (a) and (b)" as though the method contemplates separate hydrolysis of the metal compound and the organosilane, where applicable. However, "(a)" and "(b)" do not appear to be steps but, rather, a way of

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designating different compounds that are hydrolyzed. In this sense, it is the position of the Examiner that "(c)", which actually does enumerate a step, should be assigned something other than a lower case letter. Further, insofar as it is believed that hydrolysis, where it is performed for more than one compound, is not necessarily conducted in separate pots should be given its own indicator. That is to say, Applicant might consider, for example, placing a capital "(A)" before the word "forming" in the second line of claim 1 and replacing "(c)" with the capital letter "(B)". The other labels may remain the same. (This modified claim structure assumes, of course, that the Examiner's belief that hydrolyses of the two compounds are not necessarily carried out separately of one another.)

For the purpose of evaluating the claims against the prior art, the Examiner is working under the assumption that the metal compound and organosilane are not necessarily hydrolyzed separate of one another.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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Claims 1-2, 4, 6, 10, 12, 14, and 27-28 rejected under 35 U.S.C. 102(e) as being anticipated by Iwamiya et al., U.S. patent # 6,403,183. Iwamiya discloses coating materials in several forms. Of particular interest is embodiment (7) of their invention wherein a film derived from an alkoxysilane is disclosed (column 4, lines 9-19). A comprehensive outline of the preparative materials and polymerization conditions for this embodiment is provided beginning in column 9, line 17. Specific examples of the alkoxysilane are set forth in column 10, lines 18-33. Relevant to the present discussion, it is further contemplated that a metal alkoxide based on Ti, Zr, Al, or Zn may be co-condensed with the silane in amounts corresponding to 0.1 to 20 weight parts per hundred parts of the alkoxysilane (column 11, lines 19-44). The hydrolysis is carried out using up to 4 moles of water per mol of silane according to column 10, lines 63-67 and it is understood that, where a metal compound is bearing hydrolyzable groups is present, the amount of water may be up to 4 moles of water per mol of alkoxysilane and metal compound combined. Insofar as none of the anticipatory alkoxysilanes and metal compounds contain more than 4 hydrolyzable groups per molecule, the amount of water added may be at least 1 mol per every mol of hydrolyzable group. Hydrolysis is conducted in the presence of one of the catalysts mentioned in column 11, lines 1-8. Of course, where the catalyst is a strong acid, the hydrolysis condition will inherently be below pH = 6.0.

Finally, it is contemplated that fillers, stabilizing agents, coloring agents, etc. may be added to the coating solution in column 12.

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Claims 1-4, 6, 10, 12, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Wolter et al., U.S. Patent # 5,233,006. They disclose the preparation of heteropolycondensates derived from organosilicon compounds adhering to formula I and hydrolyzable compounds based on one of B, Al, Sn, etc. (column 1, lines 37-68). Relevant to the presently claimed invention, Wolter also identifies hydrolyzable vanadyl compounds as suited to the practice of their invention (see column 12, lines 42-47). The syntheses of a select couple of exemplary silanes are summarized in Figures 1 and 2. Another embodiment of the invention taught by this reference is that where another contributor to the condensate is one or more of the silanes adhering to formula (V) of which those disclosed in column 11, lines 19-47 are exemplary. The approach employed to prepare the polycondensates is outlined in columns 13 and 14. Hydrolysis is carried out at the temperature specified in column 13, lines 15-18 using, among others, one of the acids prescribed in column 13, lines 43-51. According to the paragraph bridging columns 13 and 14, the water is preferably added in discrete steps wherein the total amount of water is slightly more than the stoichiometric amount needed to hydrolyze all hydrolyzable groups present in the system, i.e. a better than 1:1 ratio of water to hydrolyzable groups. In column 14, lines 21-28, it is contemplated that various additives including dyes, fillers, stabilizers, flow control agents, etc. may be added to the polycondensate no later than just prior to application.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wolter et al., U.S. Patent # 5,233,006. Wolter does not disclose an acceptable quantity of the flow-control agent. However, one of ordinary skill would, as a matter of routine experimentation, optimize this parameter. "Discovering an optimum value of a result effective variable involves only routine skill in the art." *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc S. Zimmer whose telephone number is 571-272-1096. The examiner can normally be reached on Monday-Friday 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

August 31, 2005

*Marc Zimmer*  
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